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PATENT APPLICATION
Mo-6799
LeA 34,847**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICATION OF)	
CHRISTIAN WAMPECHT ET AL)	GROUP NO.: 1714
SERIAL NUMBER: 10/092,212)	EXAMINER: P. D. NILAND
FILED: MARCH 6, 2002)	
TITLE: NEW POLYURETHANES AND THEIR USE FOR THE THICKENING OF AQUEOUS SYSTEMS)	

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This Appeal was commenced by a Notice of Appeal filed on November 7, 2005. This Appeal Brief is filed four months from the filing date of the Notice of Appeal on November 7, 2005. A two month Petition for Extension of Time is concurrently filed herewith. The Notice of Appeal appeals the final rejection of claims 1-6 and 8-12.

The headings used hereinafter and the subject matter set forth under each heading is in accordance with 37 C.F.R. §41.37(c).

CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

Jennifer R. Seng Reg No. 45,851
Name of applicant, assignee or Registered Representative

Signature

March 6, 2006
Date

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I. REAL PARTY IN INTEREST

Christian Wamprecht, Jan Mazanek, Peter Manshausen and Frank Sauer are the only inventors of the invention described and claimed in the above-identified application. These inventors have assigned all rights, title, and interest in the invention of the application to Bayer Aktiengesellschaft, a corporation of Germany, as evidenced by assignment which was filed with the United States Patent and Trademark Office (USPTO) and is recorded on May 6, 2002 at reel 012694, frame 0049.

II. RELATED APPEALS AND INTERFERENCES

A related Appeal filed on October 26, 2005 is pending in U.S. Patent Application No. 10/092,077, the Appeal Brief of which was filed on January 26, 2006, the Appellants' legal representative or Assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in this pending Appeal.

III. STATUS OF CLAIMS

Claims 1-6 and 8-12 remain pending in the present application and are currently rejected. No Claims have been canceled. The claims on Appeal are pending claims 1-6 and 8-12.

Particularly, Claims 1-6 and 8-12 stand rejected under 35 U.S.C. §103(a) as the Examiner considers them to be obvious over U.S. Patent No. 4,079,028 to Emmons et al.

Claims 1-6 and 8-12 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1-16 of co-pending U.S. Application No. 10/091,960 and Claims 1-12 of co-pending U.S. Application No. 10/092,077.

IV. STATUS OF AMENDMENTS

The Amendment filed on August 23, 2005 in response to the Office Action dated February 24, 2005, was entered. The claims on Appeal are pending Claims 1-6 and 8-12 listed in the Amendment of August 23, 2005, and included in the Claims Appendix.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claims of the present application are directed to polyurethanes and their use for thickening of aqueous systems.

One group of claims on appeal is directed to a water soluble or water dispersible polyurethane, as described in detail on page 3, lines 5 to 17, page 4, line 15 to page 6, line 21, page 6, line 30 to page 8, line 10, and page 9, line 18 to page 11 line 6. Examples of described polyurethanes are provided on page 15, line 4 through page 17 of the specification as originally filed.

Another group of claims is directed to process for making a water soluble or water dispersible polyurethane, as described in detail on page 3, lines 19 to page 4, line 4, and page 6, line 22 to page 9, line 17. Examples of the process for creating described polyurethanes are provided on page 11, line 8 to page 14, line 2 of the specification as originally filed.

Another groups of claims is directed to a composition of matter that is a polyurethane thickener, as described in detail on page 9, line 18 to page 10, line 20 of the specification as originally filed.

Comparison examples are provided on page 14, line 3 to page 15, line 2 of the specification as originally filed.

VI. GROUND OF REJECTIONS TO BE REVIEWED ON APPEAL

I. Whether claims 1-6 and 8-12 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 4,079,028 to Emmons et al. (hereinafter "Emmons")?

II. Whether Claims 1-6 and 8-12 should be held provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1-16 of co-pending U.S. Application No. 10/091,960 to Wamprecht et al. (hereinafter "Wamprecht '960")?

III. Whether Claims 1-6 and 8-12 should be held provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 1-12 of U.S. Patent No. 10/092,077 to Wamprecht et al. (hereinafter "Wamprecht '077")?

VII. ARGUMENTS

The Arguments made in the Amendments dated August 23, 2005 in response to the Office Action dated April 1, 2005 are hereby incorporated by reference. Each ground of rejection presented for review is addressed hereinafter under the appropriate heading.

As set forth hereinbelow, the Examiner has set forth a number of rejections under 35 U.S.C. § 103(a) for obviousness. The legal conclusion as to whether the subject matter set forth in Claims 1-6 and 8-12 is obvious or non-obvious is one which cannot be reached by hindsight considerations. It is clear that in this instance, the Examiner has employed impermissible hindsight analysis in order to reject the pending claims. The Examiner has distilled the invention into its constituent elements, found each element in the prior art, and then claimed that it is obvious to reconstruct such elements into the claimed invention. This is a forbidden *ex post* analysis. It is impermissible to engage in hindsight reconstruction of the claimed invention using the Appellants' application as a template in selecting elements from the references to fill in the gaps.

To determine obviousness, a four part test, as set forth in *Graham v. John Deere Co.*, is employed to examine the: (i) content and scope of the prior art; (ii) level of ordinary skill in the art; (iii) differences between the prior art and the claimed invention; and (iv) objective evidence of non-obviousness.¹ To establish a *prima facie* case of obviousness, there must be some suggestion or motivation to combine the references, there must be some reasonable expectation of success

¹ *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966); *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1320 (Fed. Cir. 2004).

based upon the teachings of the references and the prior art references, when combined, must teach or suggest all of the claim limitations.² In order to rely on a reference under 35 U.S.C. § 103(a), the reference must be analogous prior art.³

In order to rely on a reference as a basis for rejection of the claimed invention, the reference must either be in the field of the inventor's endeavor or be reasonably pertinent to the particular problem with which the inventor was concerned.⁴ Generally, a reference may be considered reasonably pertinent if, even though it is in a different field, it is one in which logically would have commended itself to an inventor's attention in considering the problem.⁵ The similarities and differences in structure and function of the inventions carry great weight in determining whether references are of analogous or non-analogous art.⁶

I. CLAIMS 1-6 AND 8-12 ARE NOT OBVIOUS UNDER 35 U.S.C. §103(A) OVER EMMONS.

Emmons discloses a polyurethane thickener which is the reaction product of diisocyanate, polyether polyol having 3 or more OH groups, monoalcohol and monoamine.

Claim 1

Appellants contend that the Examiner is incorrect in his understanding of Emmons, and Emmons clearly does not render the present claims obvious. In particular, the Examiner is making the argument that all of the limitations of independent Claim 1 are taught by Emmons. However, Emmons fails to teach or

² MPEP 2143.

³ *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992).

⁴ *Oetiker*, 977 F.2d at 1447; *see also In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992). In *In re Clay*, the Court held that the reference at issue could not be considered to be within the inventor's field of endeavor "merely because both relate to the petroleum industry." *Id.* The prior art reference taught the use of a gel in irregular volumes within underground, natural oil bearing formations to direct flow under extreme conditions, whereas the invention at issue taught introduction of gel to a confined volume in a man-made storage tank at ambient temperature and atmospheric pressure. *Id.* Based upon the teachings, the Court found that the field of endeavor of the prior art reference was "extraction of crude petroleum" whereas the inventor's field of endeavor was the "storage of refined liquid hydrocarbons." *Id.*

⁵ *Clay*, 966 F.2d at 659.

⁶ *See* MPEP 2141.01(a).

suggest all of the limitations of independent Claim 1. Therefore, Emmons does not render the current claimed invention obvious. Thus, the Examiner has not established a *prima facie* case of obviousness.

In particular, Emmons fails to teach or suggest the combination of components of or the process for creating compound A) in the process recited in independent Claim 1. The Examiner states that the reaction of diisocyanate with polyether polyols with 3 OH groups will inherently produce polyether polyols with 4 or more OH groups suggesting that the limitations of independent Claim 1 serve only to point out intermediates that are inherent to the process disclosed by Emmons. Appellants respectfully disagree.

Emmons fails to teach or suggest the additional step in the production of polyurethanes of creating a polyether alcohol mixture of polyether polyols with an average functionality of ≥ 3 and polyether polyols with an average functionality of ≥ 4 by a partial reaction of up to 50 mole % of polyether polyols with an average functionality of ≥ 3 with isocyanates with an average functionality of ≥ 2 as recited in independent Claim 1. In his discussion of component A of independent Claim 1, the Examiner states that statistically, two of these polyether polyols will be joined by a diisocyanate in the final polyurethane of the reference creating a tetrol polyurethane polyether moiety that would read on component a2 of independent Claim 1. Within this statement, the Examiner is asserting that placing polyisocyanates and polyether polyols in the same reaction is equivalent to preparing a mixture of polyether polyols by performing a partial reaction of up to 50 mole % of polyether polyols with an average functionality of ≥ 3 with isocyanates with an average functionality of ≥ 2 , and any polyether polyol that is encompassed in Emmons that is combined with polyisocyanate in a polymerization reaction is equivalent to component A) of independent Claim 1. Clearly, a polyether polyol of single functionality is not equivalent to a mixture of polyether polyol with average functionality of ≥ 3 and ≥ 4 as recited in component A) of independent Claim 1. While statistically there may be a number of polyether polyols that are joined to form polyether polyols with functionality of ≥ 4 in a reaction containing polyether polyol and polyisocyanates, the object of component A) is a mixture containing ≤ 50 mole % polyether polyols with average functionality ≥ 4 , the necessary consequence of reacting up to 50 mole % polyether polyols with average functionality of ≥ 3 with polyisocyanates. Reactions such as those alluded to by the Examiner would produce only a fraction of polyether

polyols with average functionality of ≥ 4 described in independent Claim 1. Therefore, the Examiners assertion that any mixture containing polyether polyols and isocyanates, including those mixtures containing other components, will produce the same mixture of polyether polyols with an average functionality of ≥ 3 and polyether polyols with an average functionality of ≥ 4 that is produced by the partial reaction, is incorrect.

Furthermore, Emmons provides no teaching or suggestion that would make it obvious to one of ordinary skill in the art to prepare a mixture of polyether polyols recited in component A) of independent Claim 1 to produce a polyurethane thickener with improved high shear viscosity. Nowhere in the disclosure of Emmons is the additional step in the producing of polyurethanes of preparing a polyether polyol mixture with an average functionality of ≥ 3 and ≥ 4 by a partial reaction of up to 50 mole % of polyether polyols with an average functionality of ≥ 3 with isocyanates with an average functionality of ≥ 2 taught or suggested, nor would it be obvious from the disclosure of Emmons to use such a mixture to increase the high shear viscosity of the polyurethane thickener.

Accordingly, the disclosed polyurethane thickeners of Emmons does not render the polyurethane thickeners of the present claimed invention obvious, and the Examiner has failed to establish a *prima facie* case of obviousness. Emmons, therefore, cannot be used as the basis of a rejection under 35 U.S.C. 103(a).

Dependent Claims 2-7, 8-9 and 11-12 depend from and add further limitation to independent Claim 1 and are deemed to be allowable for at least the same reasons in connection with independent Claim 1.

Claim 10

In addition to the remarks made hereinabove in connection with Claim 1, dependent Claim 10 is non-obvious because Emmons does not teach or suggest the process for the production of polyurethane recited therein. In particular, dependent Claim 10 is directed to a process for the process of production of the polyurethane thickeners of Claim 1. As stated above, Emmons fails to teach or suggest producing polyurethane thickeners with the additional step of creating a polyether alcohol mixture of polyether polyols with an average functionality of ≥ 3 and polyether polyols with an average functionality of ≥ 4 by a partial reaction of up to 50 mole % of polyether polyols with an average functionality of ≥ 3 with

isocyanates with an average functionality of ≥ 2 as recited in independent Claim 1. Therefore, the disclosure of Emmons does not render the compositions of dependent Claim 10 obvious.

Clearly, Emmons does not teach or suggest all of the claim limitations of independent Claim 10, and does not render obvious dependent Claim 10. Accordingly, the Examiner has failed to establish a *prima facie* case of obviousness.

II. CLAIMS 1-6 and 8-12 SHOULD NOT BE HELD PROVISIONALLY REJECTED UNDER THE DOCTRINE OF OBVIOUSNESS-TYPE DOUBLE PATENTING OVER CLAIMS 1-6 and 8-12 OF WAMPRECHT '960.

Appellants submit that both the present application and Wamprecht '960 are pending. Allowable subject matter, notwithstanding the provisional obviousness-type double patenting rejection, has not been indicated in either application. Where a provisional rejection under the judicially created doctrine of obviousness-type double patenting is named between two applications, MPEP 104(I)(B) states that "if the 'provisional' double patenting rejection in one application is the only rejection remaining in the application, the examiner should then withdraw that rejection and permit the application to issue as a patent, thereby converting the provisional rejection in the other application in a double patenting rejection at the time the one application issues as a patent." Therefore, it is not evident which of the pending applications will become allowable first, and any action by Applicants with this regard is premature.

III. CLAIMS 1-6 AND 8-12 SHOULD NOT BE HELD PROVISIONALLY REJECTED UNDER THE DOCTRINE OF OBVIOUSNESS-TYPE DOUBLE PATENTING OVER CLAIMS 1-6 AND 8-12 OF WAMPRECHT '077.

Appellants submit that both the present application and Wamprecht '077 are pending. Allowable subject matter, notwithstanding the provisional obviousness-type double patenting rejection, has not been indicated in either application. Where a provisional rejection under the judicially created doctrine of obviousness-type double patenting is named between two applications, MPEP 104(I)(B) states that "if the 'provisional' double patenting rejection in one application is the only rejection remaining in the application, the examiner should then withdraw

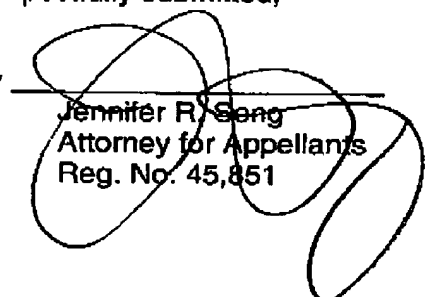
that rejection and permit the application to issue as a patent, thereby converting the provisional rejection in the other application in a double patenting rejection at the time the one application issues as a patent." Therefore, it is not evident which of the pending applications will become allowable first, and any action by Appellants with this regard is premature.

A *prima facie* obviousness of a claimed invention requires that all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F2d 981, 180 USPQ 580 (CCPA 1970). The Examiner has failed to show in Emmons each and every element of the claims of the present invention. Furthermore, there must be some suggestion or motivation to combine the references, and there must be some reasonable expectation of success based upon the teachings of the references and the prior art references to establish a *prima facie* case of obviousness (MPEP 2143). The Examiner has failed to show that Emmons provides the motivation to produce a polyurethane as recited in the present claimed invention. The preponderance of evidence clearly establishes the allowability of Claims 1-12. Reversal of all of the Examiner's rejections and allowance of Claims 1-12 are respectfully requested.

Respectfully submitted,

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CLAIMS APPENDIX

1. A water-soluble or water-dispersible polyurethane comprising the reaction product of

A) at least one polyether polyol a1) having a average functionality of ≥ 3 and at least one urethane group-containing polyether polyol a2) having an average functionality of ≥ 4 ,

B) at least one C_6 - C_{22} monoalcohol,

C) at least one (cyclo)aliphatic and/or aromatic diisocyanate,

D) optionally at least one C_4 - C_{18} monoisocyanate, and

E) optionally at least one polyisocyanate having an average functionality of > 2 ,

wherein component C) comprises isophorone diisocyanate and the starting NCO/OH equivalent ratio is between 0.5:1 to 1.2:1 and the polyurethane has a softening point of from 10°C to 80°C, and

wherein the production of the polyether alcohol mixture A) containing polyethers a1) and urethane group-containing polyethers a2) is carried out by the partial reaction of polyethers a1) with at least one organic isocyanate having a functionality of ≥ 2 and up to 50 mole % the polyethers a1) are reacted with isocyanates.

2. The polyurethane of Claim 1, wherein the polyether polyol a 1) has an average functionality of 3 or 4.

3. The polyurethane of Claim 1, wherein the polyether polyol a1) has an average functionality of 4 to 6.

4. The polyurethane of Claim 1, wherein the component B) comprises a C_8 - C_{18} monoalcohol.

5. The polyurethane of Claim 1, wherein component C) comprises a (cyclo)aliphatic diisocyanate.

6. The polyurethane of Claim 1, wherein component D) comprises a C₈-C₁₄ monoisocyanate.

7. (Cancelled)

8. The polyurethane of Claim 1, wherein the urethane group-containing polyether polyol a2) is produced by a partial reaction of polyether polyol a1) with a diisocyanate.

9. The polyurethane of Claim 8, wherein the urethane group-containing polyether polyol a2) is produced by a partial reaction of polyether polyol a1) with a polyisocyanate having an average functionality of ≥ 2 .

10. A process for the production of the water-soluble or water-dispersible polyurethane of Claim 1, comprising reacting

A) a mixture of at least one polyether polyol a 1) having an average functionality of ≥ 3 and at least 1 urethane group-containing polyether polyol a2) having an average functionality of ≥ 4 ,

B) at least one C₆-C₂₂ monoalcohol, at least one (cyclo)aliphatic and/or aromatic diisocyanate,

C) optionally at least one C₄-C₁₈ monoisocyanate, and

E) optionally at least one polyisocyanate having an average functionality of > 2

at a starting NCO/OH equivalent ratio of 0.5:1 to 1.2:1, component C) comprises isophorone diisocyanate, and the polyurethane has a softening point of from 10°C to 80°C.

11. In a process for adjusting the flow properties of an aqueous paint system, adhesive and another aqueous formulation, the improvement comprising adding the polyurethane of Claim 1 thereto.

12. An aqueous paint system, adhesive and another aqueous formulation comprising the polyurethane of Claim 1.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.